भारतीय मानक
Indian Standard

IS 4884 : 2021

स्टेरिलाइज्ड/अति उच्च तापमान स्टेरिलाइज्ड क्रीम — विशिष्टि

(पहला पुनरीक्षण)

Sterilized/UHT Sterilized Cream — Specification

(First Revision)

ICS 67.100.10

भारतीय मानक ब्यूरो
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FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Dairy Products and Equipment Sectional Committee had been approved by the Food and Agriculture Division Council.

Cream finds ready use for enriching the diet and energizing popular beverages like coffee and tea. Sterilization of cream extends its keeping quality considerably, besides preserving the quality of the original cream. Production of sterilized cream is now an accepted practice for conserving surplus milk fat to meet its shortage, and it is now being produced by a number of dairies in the country.

It is not possible to produce high grade sterilized/UHT sterilized cream from milk of poor hygienic quality irrespective of the subsequent method of treatment of handling. It is, therefore, important to exercise utmost care in obtaining milk of good hygienic quality. This standard has been prepared with a view to providing an optimum quality sterilized/UHT sterilized cream. This standard should help the dairies to produce sterilized/UHT sterilized cream of good quality and to exercise the necessary quality control.

This Indian Standard was originally published in 1968. This first revision has been undertaken to harmonize the standard with Codex Standard (CODEX STAN 288-1976) and FSSAI Regulations. The major changes include addition of UHT Sterilized cream, recombined cream and reconstituted cream in the scope and categorization of cream into low fat, medium fat and high fat along with declaration of fat content on the label for the product.

In the formulation of this standard, due consideration has been given to the *Food Safety and Standards Act*, 2006 and Regulations framed thereunder; the *Legal Metrology Act*, 2009 and Rules framed thereunder and the *Essential Commodities Act*, 1955. However, this standard is subject to restrictions imposed under these, wherever applicable.

The composition of the Committee responsible for formulation of the standard is given in Annex C.

For the purpose of deciding whether a particular requirement of this standard is complied with the final value, observed or calculated, expressing the result of a test or analysis shall be rounded off in accordance with IS 2 : 1960 ‘Rules for rounding-off numerical values (*revised*)’. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

STERILIZED/UHT STERILIZED CREAM — SPECIFICATION

(First Revision)

1 SCOPE

This standard prescribes the requirements and methods of sampling and test for sterilized/UHT sterilized cream. This standard does not cover requirements for prepared creams.

2 REFERENCES

The following standards listed below contain provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below:

IS No.	*Title*
1165 : 2002	Milk powder — Specification (*first revision*)
1479 (Part 1) : 2016	Methods of test for dairy industry: Part 1 Rapid examination of milk (*first revision*)
2491 : 2013	Food hygiene — General principles — Code of practice (*third revision*)
3509 : 1966	Methods of sampling and test for cream
10500 : 2012	Drinking water — Specification (*second revision*)
11546 : 2012	Milk and milk products — Guidance on sampling (*second revision*)
13334	Skimmed milk powder — Specification
(Part 1) : 2014	Standard grade (*second revision*)
(Part 2) : 2014	Extra grade (*first revision*)
13688 : 2020	Packaged pasteurized milk — Specification (*second revision*)
14542 : 1998	Partly skimmed milk powder Specification
13689 : 2021	Butter oil (butterfat) — Specification (*first revision)*
13690 : 2021	Pasteurized butter — Specification (*first revision)*

3 TERMINOLOGY

3.1 Cream — The fluid milk product comparatively rich in fat, in the form of an emulsion of fat-in-skimmed milk, obtained by physical separation from cow milk, buffalo milk or milk of any other species (as defined in IS 13688) or a mixture thereof.

3.2 Reconstituted Cream — Cream obtained by reconstituting milk products with or without the addition of potable water and with the same end product characteristics as the product described in **3.1**.

3.3 Recombined Cream — Cream obtained by recombining milk products with or without the addition of potable water and with the same end product characteristics as the product described in **3.1**.

3.4 Sterilized/UHT Sterilized Cream — It is cream or reconstituted cream or recombined cream that has been standardized, homogenized, sterilized/UHT sterilized and packed in aseptic conditions.

4 REQUIREMENTS

4.1 Raw materials

4.1.1 Milk intended for use in cream making shall be free from preservatives, neutralizers and adulterants [*see* IS 1479 (Part 1)]. Standardization of cream may be done by adding either skim milk or milk to cream.

4.1.2 For creams made by reconstitution or recombination, butter (*see* IS 13690), butter oil/anhydrous butter oil (*see* IS 13689), milk powders [*see* IS 1165, IS 13334 (Part 1), IS 13334 (Part 2) and IS 14542], cream powder, and potable water (*see* IS 10500) may be used.

4.2 Appearance

Sterilized/UHT sterilized cream shall have a colour ranging from white to yellow. It shall be clean and free from any objectionable discoloration.

4.3 Odour and Flavour

The product shall have a clean and pleasant odour and flavour.

4.4 Body and Texture

The product shall have a smooth, velvety texture and uniform consistency. It shall be free from objectionable graininess, lumpiness, fat separation and sediment.

4.5 The product may contain permitted food additives within the limits as specified under the *Food Safety and Standards* (*Food Products Standards and Food Additives*) *Regulations*, 2011.

4.6 Hygienic Requirements

The product shall be processed, packed, stored and distributed under strict hygienic conditions as prescribed in IS 2491.

4.7 The product shall also comply with the requirements specified in Table 1.

5 PACKING AND MARKING

5.1 Packing

Sterilized/UHT Sterilized cream shall be aseptically packed in hermetically sealed containers in such a way as to protect it from deterioration.

5.2 Marking

5.2.1 The original pack or the prepared-consumer pack shall be legibly marked as to give the following information:

a) The name of the product according to the fat content as low fat sterilized/UHT sterilized cream, medium fat sterilized/UHT sterilized cream or high fat sterilized/UHT sterilized cream as well as declaration of the fat content;

b) Creams which have been manufactured by the recombination or reconstitution of dairy ingredients shall be identified with the term "Recombined" or "Reconstituted" as appropriate (*see* 3);

c) Name and address of the manufacturer;

d) Batch or code number;

e) Month and year of manufacturing or packing;

f) Net quantity;

g) Best before .....(month and year in capital letters);

OR

Best before..... (months) from the date of packing/manufacture; and

h) Any other requirements under the *Food Safety and Standards* (*Packaging and Labelling*) *Regulations*, 2011 and the *Legal Metrology Act*, 2009 and Rules framed thereunder.

5.2.2 *BIS Certification Marking*

The product(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act*, 2016 and the Rules and Regulations framed thereunder, and the products may be marked with the Standard Mark.

6 SAMPLING

Representative samples of sterilized/UHT Sterilized cream for testing conformity to this standard shall be drawn as described in Annex B and IS 11546.

Table 1 Requirements for Sterilized/UHT Sterilized Cream

(*Clause* 4.7 **)**

Sl No.	Characteristic	Requirement			Method of Test, Ref to
		Low Fat Sterilized/UHT Sterilized Cream	Medium Fat Sterilized/UHT Sterilized Cream	High Fat Sterilized/UHT Sterilized Cream	
(1)	(2)	(3)	(4)	(5)	(6)
i)	Fat, percent by mass	*Min* 10.0 – Less than 40.0	*Min* 40.0 – Less than 60.0	*Min* 60.0	**4.2** of IS 3509
ii)	Titratable acidity (as lactic acid), percent by mass, *Max*		0.15		**5** of IS 3509
iii)	Incubation test	To satisfy the requirements of the test			Annex A

ANNEX A

[*Table* I, *Item* (iii)]

INCUBATION TEST

A-1 GENERAL

The purpose of this test is to determine the shelf life of the product. In order that the period of the test is shortened, the possibly existent micro-organisms and their spores are given the optimum temperature at which they thrive. If they do not show their presence even at the end of this test, the material passes the test.

A-2 PROCEDURE

A-2.1 Incubate the samples at a temperature of 38 °C for 14 days.

A-2.2 The samples shall pass the test if:

a) the containers do not show any bulge due to positive pressure within, and

b) the product inside the container has not curdled or thinned and is free from any objectionable taste or odour, sliminess, etc.

ANNEX B

(*Clause* 6.1)

SAMPLING OF STERILIZED/UHT STERILIZED CREAM

B-1 GENERAL REQUIREMENTS

B-1.0 In drawing, preparing, storing and handling the samples, the following precautions and directions shall be observed.

B-1.1 The sampling instrument shall be sterile, clean and dry when used.

B-1.2 Precautions shall be taken to protect the samples, the material being sampled, the sampling instrument and the containers from adventitious contamination.

B-2 SCALE OF SAMPLING

B-2.1 Lot

In any consignment, all the containers of the same size and from the same batch of manufacture shall be grouped together to constitute a lot.

B-2.1.1 Samples shall be tested for each lot for ascertaining the conformity of the material to the requirements of this standard.

B-2.2 The number of containers to be selected from the lot shall depend on the size of the lot and shall be as given in Table 2.

Table 2 Scale of Sampling

(*Clause* B-2.2)

No. of Containers in the Lot	No. of Containers to be Selected
(1)	(2)
101 to 300	9
301 to 500	12
501 to 1000	15
1001 to and above	21

B-2.3 These containers shall be selected at random from the lot and to ensure the randomness of selection, a random number table as agreed to between the purchaser and the vendor shall be used. In case such a table is not available, the following procedure shall be adopted.

B-2.3.1 Starting from any container, count them as 1, 2, 3,..., etc, up to r in one order, where *r* is the integral part of *N*/*n* (N being the total number of cases in the lot and n the number of containers to be chosen). Every r^{th} container thus counted shall be separated until the requisite number of containers are obtained from the lot to give the samples for test.

B-2.3.2 In addition to the containers selected according to **B-2.3.1**, 6 containers shall be selected from each lot at random for incubation test.

B-3 TEST SAMPLE AND REFEREE SAMPLE

B-3.1 The containers selected according to **B-2.3.1** and **B-2.3.2** shall be divided into three equal sets and labelled with all the particulars of sampling, one of these sets of samples shall be for the purchaser, another for the vendor and the third for the referee.

B-3.2 Referee Sample

The referee sample consists of a set of sample containers for general and chemical tests (*see* **B-2.3.1**) and a set of sample containers for incubation tests (*see* **B-2.3.2**). These containers shall bear the seals of the purchaser and the vendor (or their representatives) and shall be kept at a place as agreed to between the two.

B-4 NUMBER OF TESTS

B-4.1 Test for general requirements, for fat percent by mass and titratable acidity percent by mass shall be made on the set of individual sample containers selected according to **B-3.1**.

B-4.2 Incubation test shall be conducted on the individual sample containers selected according to **B-2.3.2**.

B-5 CRITERION FOR CONFORMITY

The lot shall be decided as conforming to the specification if the test samples taken in **B-4.1** and **B-4.2** satisfy the corresponding requirement of the specifications.

ANNEX C

(*Foreword*)

COMMITTEE COMPOSITION

Dairy Products and Equipment Sectional committee, FAD 19

Organization	*Representative(s)*
National Dairy Research Institute, Karnal	Dr Manmohan Singh Chauhan (***Chairman***)
All India Food Processors Association, New Delhi	Dr K. L. Gaba Mr Vijay Gaur (*Alternate* I) Mr Santash Kumar (*Alternate* II)
Bihar State Cooperative Milk Producers' Federation Ltd, (COMPFED), Delhi	Mr Sushil Kumar Mr Rupesh Raj (*Alternate*)
CONCERT, Chennai	Mr K. Ramachandran Mr M. R. Krishnan (*Alternate*)
Confederation of Indian Food Trade & Industry, New Delhi	Ms Priyanka Gupta Dr Anirudha Chhonkar (*Alternate*)
Confederation of Indian Industry, New Delhi	Ms Neha Aggarwal Ms Arti Gupta (*Alternate*)
Centre for Analysis and Learning in Livestock and Food (CALF), Anand	Dr Rajesh Nair Dr Rajeev Chawla (*Alternate*)
Department of Animal Husbandry, Dairying & Fisheries, New Delhi	Mr Sagar Mehra Mr Rajesh Kumar Gupta (*Alternate*)
Directorate of Marketing and Inspection, Faridabad	Deputy Agricultural Marketing adviser Senior Marketing Officer-Standard (*Alternate*)
Export Inspection Council of India, New Delhi	Dr S. K. Saxena Mr Vikas Dahiya (*Alternate*)
Envirocare Labs Pvt Ltd, Thane	Mr Nilesh Amritkar Ms Sabeena K. (*Alternate* I) Ms Kavita Gokhale (*Alternate* II)
FICCI Research and Analysis Centre, New Delhi	Dr S. K. Manocha Dr Ajay Sharma (*Alternate*)
Food Safety and Standards Authority of India, New Delhi	Dr Monica Puniya Ms Tripti Tayal (*Alternate*)
Gujarat Cooperative Milk Marketing Federation Ltd, Anand	Mr Sameer Saxena Mr Sayan Banerjee (*Alternate*)
Haryana Dairy Development Coop Federation Ltd, Panchkula	Mr S. S. Kohli Mr Y. P. Singh (*Alternate*)
IDMC Ltd, Anand	Mr Devender Gupta Mr Prakash Maheshwari (*Alternate*)
Indian Dairy Association, New Delhi	Dr G. S. Rajorhia Dr Satish Kulkarni (*Alternate*)
Indian Stainless Steel Development Association, Gurugram	Mr Rohit Kumar Mr Rajat Aggarwal (*Alternate*)
Infant and Young Child Nutrition Council	Dr Nirupama Sharma Mr Kiran Desai (*Alternate*)
Jupitor Glass Works, New Delhi	Mr Karan Nangia Mr Amreek Singh Puri (*Alternate*)

Organization	*Representative(s)*
Mother Dairy Fruit and Vegetable Ltd, Delhi	Ms Nita Sen Mr Shailender Kumar (*Alternate*)
National Dairy Development Board, Anand	Dr R. S. Lahane Mr Suresh Pahadia (*Alternate*)
National Dairy Research Institute, Karnal	Dr Vivek Sharma Dr Rajesh Kumar Bajaj (*Alternate*)
National Institute of Food Technology Entrepreneurship & Management (NIFTEM), Sonipat	Dr P. K. Nema
National Institute of Nutrition, Hyderabad	Dr B. Santosh Kumar Dr Sylvia Fernandez Rao (*Alternate*)
Pradeshik Co-op Dairy Federation Ltd, Lucknow	Mrs Shabnam Chopra
Punjab State Coop Milk Producers' Federation Limited	Dr Brar
Rajasthan Co-op Dairy Federation (RCDF) Ltd, Jaipur	Mr J. D. Singh
Tamil Nadu Co-op Milk Producers' Federation Limited, Chennai	Mr S. R. Sankar Mr T. M. James Dinakaran (*Alternate*)
Tetra Pak India Pvt Ltd, Pune	Mr Shashikant Ramnath Suruse Mr Sameer Singh Suhail (*Alternate*)
Vimta Labs Limited, Hyderabad	Dr Jagadeesh Kodali Dr Muni Nagendra Prasad Poola (*Alternate*)
BIS Directorate General	Shrimati Suneeti Toteja, Scientist 'E' and Head (FAD) [Representing Director General (*Ex-officio*)]

Member Secretary

Dr Bhawana
Scientist 'D' (FAD), BIS

Bureau of Indian Standards

BIS is a statutory institution established under the *Bureau of Indian Standards Act*, 2016 to promote harmonious development of the activities of standardization, marking and quality certification of goods and attending to connected matters in the country.

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Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of 'BIS Catalogue' and 'Standards: Monthly Additions'.

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